Fleetwood Group

Electronic Interactivity—the Ultimate feedback mechanism.

USER MANUAL

Reply® Plus

Applies To:

Base Station, Model WRS971
(Firmware Revision 2.x)

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Printed in the U.S.A.

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Revision History:

Rev	Date	Description
A	**07/15/08**	**Revision 2.x Original**
B	**07/07/09**	**Update Fleetwood Group Logo**
C	**11/17/09**	**Updated Patent Information**

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1.0 Reply® Systems

1.1 Introduction

This product consists of wireless (RF) handheld 15-key numeric keypads and a Base Station. The system is generally used to record answers to multiple choice questions as part of a classroom presentation, decision-making session, focus group, or videoconference. It offers methods for collecting and immediately reporting group response. Reply® systems have been available for several years and over 400,000 keypads are currently used worldwide.

Reply® is a cordless handheld response system that provides numeric data interaction for meeting or learning environments. Keypad responses are transmitted to the Base Station, which processes and delivers the information to the attached computer.

Application software operates the Base Station and controls its associated Keypads. While the system's hardware may offer powerful features, application software is the essential ingredient in applying the technology to generate useful results.

1.2 Applications/Advantages

Many meeting and learning venues require a mechanism for audience interaction. Moreover, many seek a method of automating surveys and grading activities. Reply® meets the need for such an interactive tool, bringing everyone together and instantly allowing measurement of interest, understanding, and involvement.

- Audience members can participate from their seat and personally indicate their opinions, ideas, and knowledge.
- Results of the interaction are immediately available, and their display offers presenters a valuable insight into the opinion and comprehension level of audience members.
- System setup typically involves handing a Keypad to every participant and connecting the Base Station to a computer. No Keypad wires or cabling need be installed prior to use. This allows fast, reliable, safe, and attractive installation.

1.3 RF Communication

The Keypads communicate with the Base Station using wireless Radio Frequency (RF) technologies. The patented proprietary design has been rigorously tested and optimized for reliability and collection speed.

1.4 Technology Leadership, Patent Protection, and Certification

Fleetwood Group, Inc. maintains a leadership position in wireless development of audience response solutions. United States Patents 5,093,786, Re. 35,449 and 7,599,703; European Patent EU 1 478 099 B1 and others reflect the commitment to wireless technology leadership and the unique position that Fleetwood Group, Inc. brings to the market. Additional United States and foreign patents are pending.

Fleetwood Group, Inc. also maintains a commitment to complying with the United States Federal Communications Commission and various foreign regulatory requirements. Others are continuously being added. Please contact your reseller or Fleetwood Group, Inc. for more information on certification.

1.5 Other Fleetwood Group, Inc. Products

Fleetwood Group, Inc. is a manufacturer of quality electronic products that are sold through a worldwide reseller network. All Reply® products are designed and manufactured in Holland, Michigan.

For more information on these products or our customization capability, please visit our website at www.replysystems.com.

2.0 Principles of Operation

This Reply® System uses the latest in 2.4 GHz wireless technology to turn any meeting into a dynamic interactive experience for each participant without having to deal with a nightmare of cables and connectors.

Fleetwood is unique in the marketplace with its patented technology to provide a two-way link with the keypads. This design ensures that no responses are missed by requiring a keypad to retransmit the user's response until it is properly received by the Base Station. The design also allows the system to refuse to acknowledge any invalid entries. This is clearly superior to other technologies using one-way radio or infrared, which do not provide acknowledgment to the keypad when its entry is received and do not have any way of rejecting invalid entries.

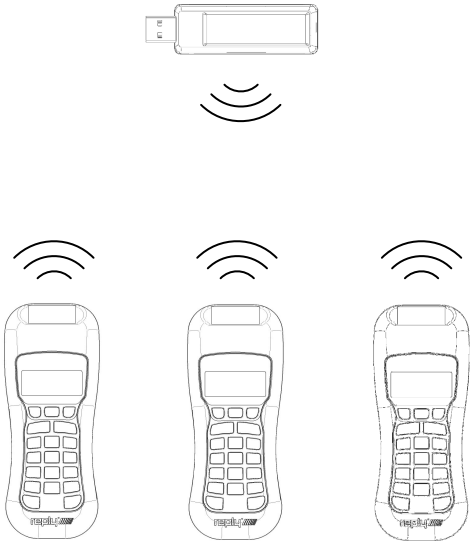


Figure 1. System Diagram

The WRS971 Base Station is the control center for the system and operates according to commands issued by the application software. The Base Station can be set to any of the 31 available channels through the OCX module. Each Base Station can process responses from up to 500 keypads.

A radio frequency packet is continuously sent out by the base station when the unit is powered on. Each base station's packet can only be received by keypads that have been set to the same channel.

3.0 System Description and Setup

3.1 Room Layout

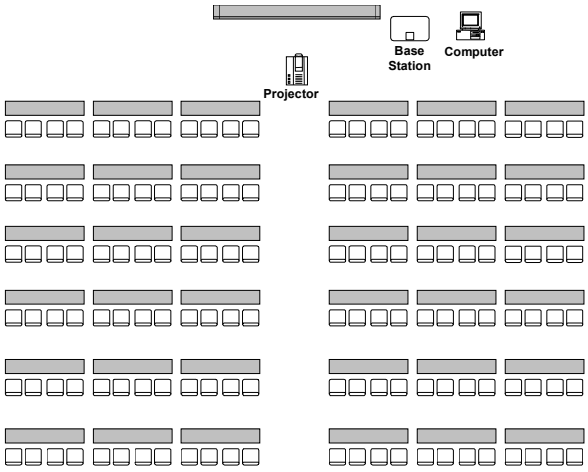


Figure 2. Typical Room Layout

3.2 Placement of the Reply® System

The Base Station can be located anywhere in the area where the keypads are to be used. The base can operate in a room up to 300' x 300' (100m x 100m) in size. The total range of the system is determined by the base and keypad, whichever is shorter. Despite a robust communication system, walls and some other 2.4 GHz devices can moderately to severely limit the WRS971 system's performance. If coverage of a larger area is necessary, elevation of the Base Station or centering in room can usually improve the reception of the keypad signals.

NOTE: Due to the properties of signals operating at 2.4 GHz, Fleetwood does not recommend placing any walls between the base station and the keypads. The material in a wall tends to absorb the RF signal and some reduced performance might be observed.

4.0 Connecting the Base

Figure 3. WRS971 Base Station

4.1 Configure Base for Connection Type

The WRS971 supports only a USB connection to the PC. Alternatively, the WRS970 Base Station supports both USB and Ethernet along with PoE capability. Contact a Fleetwood dealer for more information.

4.2 Software

Activate the Reply® WRS971 compliant software application. Connect to the Base Station (see your software user guide for further instructions) and start a polling session. The Base Station is now ready to process responses from assigned keypads. See the User Manual for the keypad model number you are using to get started.

5.0 System Information

5.1 Base Properties

The base properties such as serial number, Base ID and firmware revision can only be obtained through software. See your software guide for more information.

5.2 LED Indicators

The base uses an orange LED to indicate the unit is powered properly.

A blue LED will light when the base is sending data to the PC. This data includes setting changes made through software and keypad voting data.

6.0 System Settings

6.1 Session Naming

Version 2.x firmware supports the ability to name a polling session. Session name does not uniquely identify a base or system. Each base must still have a unique Base ID set to it. Session names are not stored if the base is disconnected from power. Each time a session is started, the name, if desired, will need to be set through software.

6.2 RF Performance

The WRS971 system is frequency hopping to avoid interferences from other products. However, a heavily used wireless internet access point can make certain frequencies more difficult to transmit on. There are three commonly used channels for Wi-Fi access points: Channel 1, 6 and 11. The Reply® WRS971 system can be set up to avoid 1 to 2 of these channels if needed. The available settings are displayed in Table 1. See your network administrator for help in determining the optimum setting.

In larger areas, use a USB extension cable to move the base to a more elevated location away from other electronics equipment and cables.

Table 1. Wifi Channel Avoidance Settings

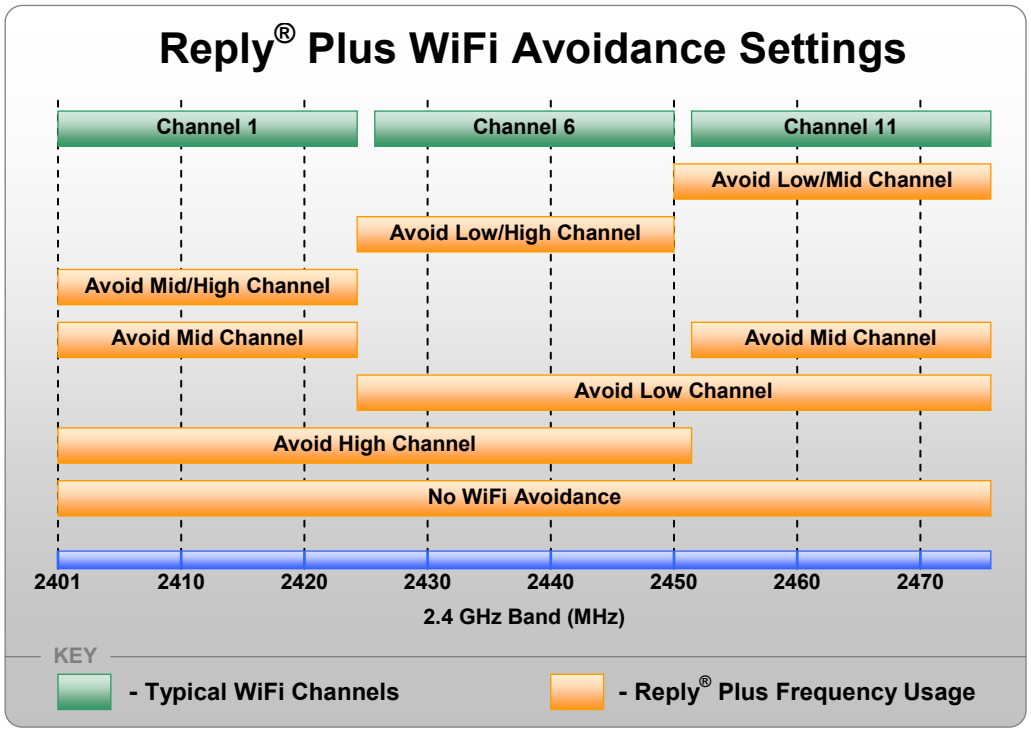
Avoid Wi-Fi Setting	Channels can be avoided
Low	Avoid 2425 to 2475MHz (avoid Wi-Fi channels 6 and 11)
LowMid	Avoid 2450 to 2475MHz (avoid Wi-Fi channel 11)
LowHigh	Avoid 2425 to 2450MHz (avoid Wi-Fi channel 6)
Mid	Avoid 2401 to 2425 and 2450 to 2475MHz (avoid Wi-Fi channels 1 and 11)
MidHigh	Avoid 2401 to 2425MHz (avoid Wi-Fi channel 1)
High	Avoid 2401 to 2450MHz (avoid Wi-Fi channels 1 and 6)

When using multiple Reply systems in nearby rooms, it is recommended to lower the power level setting to avoid system interference. Set the power to what is necessary to reliably cover the room or area in which the system will operate. The power level options are displayed in Table 2.

Table 2. Power Level Settings

Power Level	Power (mW)
Low	0.01 mW
Mid	0.1 mW
High	0.3 mW
Europe Max	1 mW (default for all systems)

Figure 4. WiFi Frequency Avoidance



6.3 Other Settings

Most system settings are set via software through the base station to control keypad behavior. See your specific software program help to determine what features are available.

7.0 WRS971 Data Format and Command Lists

The Base Station data format, command lists, and associated microcode are proprietary to Fleetwood. People who wish to develop their own applications may purchase the Reply® Plus API. This is a software developer's toolkit that includes the necessary communication drivers for the base station.

8.0 Software

Off-the-shelf software packages are available for Reply®. These packages are available through Fleetwood's network of qualified dealer-developers. Most Reply®. compliant software applications require the Windows operating system (trademark Microsoft Corporation).
Contact Fleetwood for details on the software applications that are certified for use with Reply® products.

9.0 Accessories

Call Fleetwood or an authorized dealer for information on available storage/shipping cases, extra cables or power supply kits.

10.0 Limited Product Warranty

Fleetwood Group, Inc. warrants its Reply® Wireless Response System components for a period of 24 months from the date of manufacture for any material or workmanship defect in the product. This warranty does not extend to batteries or any product component, which has been subjected to misuse, neglect, accidental breakage, improper installation, use outside of present guidelines, or alteration outside of our factory.

Reply® Base Stations and Keypads use internal antennas built directly on the printed circuit board. Modifying the antennas in any way will result in reduced range and will void the warranty.

There are no user serviceable parts inside Reply® Base Stations or Keypads.

Fleetwood Group, Inc. agrees to remedy, at the factory, any product defect, or at its discretion, replace any component or part of the product provided the owner complies with the following procedures:

1) The owner is to determine that the problem is not the battery or a faulty or improper connection with the personal computer or power source.

The owner will contact our Product Service Coordinator during standard hours Monday through Thursday 7:00 AM to 3:30 PM and Friday 6:00 AM to 12:00 PM Eastern Standard Time at

1-888-GO REPLY (467-3759)

or

www.replysystems.com/rma/

to obtain a Return Material Authorization (RMA) number prior to shipping the product back to the factory.

2) The owner will send the defective component via prepaid freight to:

Fleetwood Group, Inc.
Electronics Division
Product Service Coordinator
RMA#:
11832 James Street
Holland, MI 49424

3) If the factory determines the defect is due to negligence or oversight on the part of the owner, the owner will be invoiced for the cost of the repair.

11.0 FCC, IC, and EU Compliance Information

CRS971USB contains USB240D RF Module
Responsible Party Pertaining to the Declaration of Conformity

Fleetwood Group, Inc.
11832 James Street
Holland, MI 49424
Attn: Product Service Coordinator
Phone: 888-467-3759

11.1 Standards and Guidelines

This device complies with the following European Directives and USA/Canada Regulations:

- Directive 1999/5/EC on radio equipment and telecommunication terminal equipment and the mutual recognition of their conformity
- Directive 2006/95/EC on the harmonization of laws of member states related to electrical equipment designed for use within certain voltage limits
- The USA Federal Communications Commission (FCC) Rules and Regulations
- Industry Canada Rules and Regulations

This device complies with the following national and international standards:

- EN 301 489-1 V1.6.1: 2005: EMR; EMC standard for radio equipment and services. Part 1: Common technical requirements.
- EN 301 489-17 V1.2.1: 2002: EMR; EMC standard for radio equipment and services. Part 17: Specific conditions for 2.4 GHz wideband transmission systems and 5 GHz high performance RLAN equipment.
- EN 300 328 V1.7.1: Electromagnetic compatibility and Radio spectrum Matters (ERM);Wideband transmission systems; Data transmission equipment operating in the 2,4 GHz ISM band and using wide band modulation techniques.
- EN 60950-1: 2001 + A11: 2004: Information technology equipment – Safety. Part 1: General requirements
- FCC Part 15B, 15.247: 10-01-2006: Radio Frequency devices: Operation within the bands 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz.
- IC RSS-210 Issue 7: 2007: Low power license-except radio-communications devices (all frequency bands): Category 1 equipment.

11.2 FCC/IC Compliance

This device complies with Part 15 of the FCC Rules and RSS-210 of the Industry Canada Rules. Operation is subject to the following two conditions: (1) this device may not cause interference and (2) this device must accept any interference, including interference that may cause undesired operation of the device. The user is cautioned that changes or modifications to the device that are not approved by the manufacturer could void the user's authority to operate the device.

11.3 EU Compliance

This device is a 2.4 GHz low power response system controller intended for residential and commercial use in all EU and EFTA member states.

CE

Notice

The base and keypad units may be susceptible to *E*lectro*s*tatic *D*ischarge (ESD) and other similar fast transient events causing system interruption. Should system interruption occur, reboot computer, reset base unit by disconnecting and reconnecting USB cable and push any key on keypads which have powered down.

12.0 Base Technical Specifications

Enclosure

Symbol	Parameter	Value			Unit
		Min	Typ	Max	
d_l	Length	-	3.1	-	in.
d_w	Width	-	0.90	-	in.
d_h	Height (Thickness)	-	0.57	-	in.
w_b	Weight	-	0.035	-	lbs

Power

Symbol	Parameter	Value			Unit
		Min	Typ	Max	
V_{DD}	Supply Voltage USB	4.75	5	5.25	V
I_{DD}	Current Consumption USB	30	-	50	mA

13.0 Troubleshooting Procedures

ISSUE	POSSIBLE CAUSE	SOLUTION
Poor RF Performance	Base not in open area.	Do not place the base inside cabinets.
	Base located too close to other electronic equipment	Place the base away from other electronic devices, such as TV's, DVD/VCR players and similar.
	More than one base unit on the same Base ID	Check that the bases covering an area are not on the same Base ID.
	WiFi RF Interference	Verify the WiFi avoidance settings are set correctly in the software. See your network administrator for channel settings.
	Other Interference	Always physically separate other radio devices by at least 10' (3 m). This includes WiFi, Bluetooth, ZigBee and other similar devices.
	Multiple Base Stations are too close	Keep base stations separated and do not stack units.
Short range with keypads	Power level setting too low.	Check that the power level setting of the system is appropriate for the range trying to be achieved (Some countries have restrictions as to the power level setting allowed. See Section **Error! Reference source not found.**).
	Interference	See "Poor RF Performance".

14.0 Installing Your New Hardware

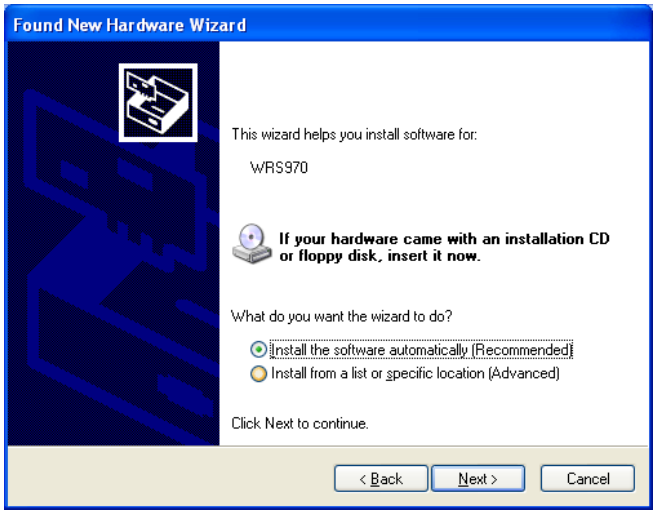
It is possible that the instructions below are not necessary if a different base unit has been connected to the computer previously or if the driver is already installed on the computer. In those instances, Windows will install behind the scenes and report through balloons that "The hardware is installed and ready to use."

1) Insert the enclosed CD into your disk drive if internet access is not active.

2) Connect the WRS971 device to a USB port on your PC. If the following dialog box appears, select "Yes, this time only" and Click "Next" to proceed.

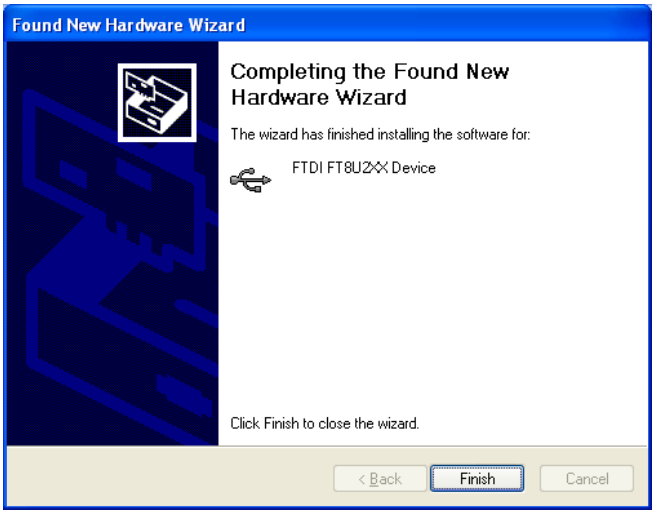
Found New Hardware Wizard
Welcome to the Found New Hardware Wizard
Windows will search for current and updated software by looking on your computer, on the hardware installation CD, or on the Windows Update Web site (with your permission).
Read our privacy policy
Can Windows connect to Windows Update to search for software?
Yes, this time only
Yes, now and every time I connect a device
No, not this time
Click Next to continue.
< Back
Next >
Cancel

3) Choose "Install the software automatically (Recommended)" Click Next.


Found New Hardware Wizard
This wizard helps you install software for:
WRS970
If your hardware came with an installation CD or floppy disk, insert it now.
What do you want the wizard to do?
Install the software automatically (Recommended)
Install from a list or specific location (Advanced)
Click Next to continue.
< Back
Next >
Cancel

4) Wait while Windows searches for the drivers.

5) Click "Finish" to complete the install.



6) The hardware is ready to use. Continue with the software installation instructions.

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